

# A significant role

**Marko Delimar says the integration of far-off, large-scale renewable energy sources into Europe's energy mix is 'paramount'**

**R**enewable energy sources are “everywhere”, says Marko Delimar, a professor at university of Zagreb's faculty of electrical engineering and computing, “but if we want them to play a significant role in the energy mix then we need to harvest large amounts of them.” “The problem with renewable energy,” he added, “is that its density is very low, so you need large amounts, which are often away from large, populated cities.”

Tackling the issue of integrating these large-scale renewable energy sources into the EU energy mix is crucial for “Europe's energy future”, stressed Delimar. The Croatian academic explained that “the largest amount of global electricity comes from fossil thermal sources, followed by hydro and nuclear. All other energy sources amount to about five per cent of the world's electricity generation.” Delimar underlined the importance of these figures in the context of Europe's stated desire that “in the future it wants its power sector to be CO2 neutral”. As regards this target, “Europe may be a frontrunner in renewables, but we still have a long way to go”, he says.

The key challenge facing Europe if it wishes to make use of the vast renewable energy sources dotted around the continent is one of infrastructure, says Delimar, which he highlighted as a “technology-based issue”. The EU's energy requirements will go beyond what can be provided by the installation of “photovoltaics on existing rooftops”. “We will have to begin reaching towards energy sources that are in the north, in the sea, that are offshore, as well as in the south, that are in the Mediterranean, that are sun-based,” he

said. However, Delimar added that “to bring that energy that is produced there to the consumers, to central Europe, you need an electricity grid that can do that, that can reach to those places”. He added that “the birth of such a grid is happening as we speak in the North Sea, but we need to do much more”.

*“Europe may be a frontrunner in renewables, but we still have a long way to go”*

Delimar recommended a “consolidation of all major players and energy stakeholders in Europe” as a means of boosting efforts towards transitioning to this new energy harvesting and delivery system. He also pointed to the efforts that could be made by policymakers “through EU projects such as Horizon 2020 and through their ability to communicate with researchers and the energy community”. “They need to support

the development of new technologies that will enable change and stimulate the process of creating a pan-European electricity system which will be able to support the energy needs of the year 2050”.

“The fact is,” he warned, “that consumption is growing every year and we have a desire to make it CO2 neutral, but we do not feel the immediate necessity to make a global change and invest large amounts of money.” This need to shift focus away from present day requirements was vital. “Basically, we have to close our eyes and envisage the system that will exist in 2050 and then start working towards such a system,” said Delimar. The Croatian professor added that “many of the technologies necessary for this to system to work are still being developed, with promising results and steps forward”.

“We need to develop these technologies that will increase the harvestable energy on our roofs, in our gardens, but also that will allow us to harvest energy from far-away sources, such as offshore wind in the north and sun in the south. This is paramount,” he concluded.

**Marko Delimar is IEEE director and secretary and leads IEEE activities in Europe**

